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Attorney's Docket N . AL.US.9

**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Joanna L. Duncan,  
 Christopher R. McLarnon, and Francis R. Alix ]  
 Serial No.: 09/683,267 ] Examiner: Peter Lish  
 Confirmation No.: 3355 ]  
 Filed: 12/06/2001 ] Group Art Unit: 1754  
 For: NO<sub>x</sub>, Hg, AND SO<sub>2</sub> REMOVAL USING  
 AMMONIA ]

**Commissioner for Patents**  
**P.O. Box 1450**  
**Arlington, VA 22313-1450**

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**TELEPHONE INTERVIEW SUMMARY**  
**MPEP 713.04**

A telephone interview was held at 10:00 AM on Tuesday, July 22, 2003. In attendance representing the Office were Examiner Peter Lish and Primary Examiner Stuart Hendrickson. Representing the Applicants were Attorney Phillip Decker, and each inventor on this application: Dr. Joanna Duncan, Dr. Christopher McLarnon, and Mr. Francis Alix.

**CERTIFICATE OF TRANSMISSION**

I hereby certify that this correspondence is being facsimile transmitted to the Commissioner for Patents (Fax No. 703-872-9310) on July 23, 2003.

Typed or printed name of person signing this certificate: Phillip E. Decker.

Signature: Phillip E. Decker

The subject of the interview was to discuss the rejection of claims 1-16 in the Office communication mailed 2/26/2003. In that communication, claims 1-16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (USPN 5,041,271) taken with Alix et al. (USPN 5,871,703) taken with Senjo et al. (USPN 4,035,470).

1. The Office asserted that Aoki teaches a SO<sub>x</sub> : NO<sub>x</sub> of waste gas mixture of 5:1 in col. 6, lines 65-66. Applicants replied that Aoki refers only to inlet conditions, and our claims 5 and 6 refer to conditions after the oxidizing step. The examiners invited the Applicants to provide material demonstrating the unexpected result of their ratios, and to place the limitation of claim 5 into claim 1. The parties reached agreement that this would likely make claim 1 allowable.

2. The Office asserted that it would have been obvious to substitute the dielectric barrier discharge ("DBD") of Alix for the e-beam of Aoki to perform the same oxidation. The Applicants replied that e-beam and DBD in the present process are not interchangeable because e-beam would convert too much SO<sub>2</sub> so that it cannot be used for NO<sub>2</sub> scrubbing. The Applicants also pointed out that the results of the DBD process of the present invention is different from the result of the DBD process of the previous Alix patent because it is used at lower power and therefore does not convert as much of the NO<sub>x</sub> and SO<sub>x</sub> gasses to acids. The examiners invited the Applicants to differentiate the results of the e-beam process and the DBD process of the old Alix patent with the present process in writing, perhaps by indicating

resultant acid concentrations in claim 1. No agreement was reached. The examiners said they would have to study the Applicants' argument in greater detail.

3. The Office asserted that it would have been obvious to use the Aoki process to remove Hg in addition to NO<sub>2</sub> and SO<sub>2</sub> because emissions from power plants contain all these pollutants. The Applicants disagreed, replying that there is no data available to suggest that e-beam is capable of oxidizing Hg and that data for other gas constituents in the e-beam process had produced unexpected results over those obtained with a dielectric barrier discharge. No agreement was reached. The Applicants said they would draft a written argument for the examiners' consideration.

4. The Office asserted that it would have been obvious to use the wet ESP of Alix in the Aoki process. The Applicants replied that, although Aoki does not specify wet or dry ESP, the Aoki ESP must necessarily be limited to a dry ESP as the process produces and collects a dry byproduct in the gas stream. A wet ESP would add significant expense to the Aoki process without materially improving performance. No agreement was reached. The Applicants agreed to draft a written argument why the Aoki patent should be construed as using teaching dry ESPs only.

Date: 7/23/03

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(Signature of Attorney)

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